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From: Kevin G. Mierzwa

Date: July 20, 2005

Our File No.: 202-0923 (FGT 1692 PA)

Your Ref. No.: 10/619,051

Comments: Attached is Appeal Brief pursuant to Notice of appeal dated 5/20/05.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In Re Application of

Albert Chenouda Salib

Group Art Unit: 3661

Serial No.: 10/619,051

Examiner: Beaulieu, Yonel

Filed: 07/14/2003

For: SYSTEM AND METHOD FOR SENSITIZING THE ACTIVATION CRITERIA OF A ROLLOVER CONTROL SYSTEM

Docket No: 202-0923 (FGT 1692 PA)

CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. § 1.8(a))

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Date: 7/20/05

Kevin G. Mierzwa

BRIEF ON APPEAL

Mail Stop Appeal Brief – Patents
Commissioner for Patents
Box 1450
Alexandria, VA 22313-1450

Sir:

The following Appeal Brief is submitted pursuant to the Notice of Appeal dated May 20, 2005.

I. Real Party in Interest

The real party in interest in this matter is Ford Global Technologies, LLC, which is a wholly owned subsidiary of Ford Motor Company both in Dearborn, Michigan (hereinafter "Ford").

II. Related Appeals and Interferences

There are no other known appeals or interferences which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

III. Status of the Claims

Claims 1-13 and 16-18 stand rejected in the Final Office Action. A copy of the claims on appeal is attached as an Appendix.

IV. Status of Amendments Filed After Final

There have been no amendments filed subsequent to the final rejection.

V. Summary of the Invention

The present invention claims various aspects for controlling a vehicle relative to the wheels lifting in some manner. Each of the claims of the present application includes determining a relative roll angle. The relative roll angle is illustrated in Fig. 2. The definition for the relative roll angle is set forth in paragraph 39 which states that the relative roll angle is the angle between the wheel axle and the body. Claims 1 and 10 also recite wheel departure angle, which is the angle between the wheel axle and the road.

Claim 1 is directed to a method of operating a control system for an automotive vehicle that includes three steps. The three steps are determining a relative roll angle and when the relative roll angle teaches a threshold, initiating a wheel departure angle determination. The final step is controlling the safety system in response to the wheel departure angle. The step of determining a relative roll angle is set forth in step 124 of Figure 8. The comparison of a threshold is set forth in step 126 and controlling a safety system is described in various places, and various types of safety systems are illustrated in Figure 4A, reference numeral 38.

Claim 2 recites the step of when the vehicle is in a transition and when the relative roll angle reaches a threshold and the vehicle is in transition, initiating a determination of the wheel departure angle. This is also set forth in Figure 8, step 126.

Claims 3 and 4 stand or fall together and recite that the transition is a right to left transition and a left to right transition, respectively. Transitional maneuvers are described in step 140 of Figure 9.

Figure 5 recites that the step of Initiating is performed when the relative roll angle increases to the threshold. As mentioned above, the threshold is described in step 126 of Figure 8.

Claim 6 recites the further step of generating a roll signal for control in response to the wheel departure angle and that the safety system is controlled in response to the roll signal for control. The roll signal for control is described with respect to step 132 of Figure 8.

Claim 7 recites that the safety system is a rollover control system. A roll stability control system is set forth in Figure 4A as reference numeral 18. This is described in paragraph 44.

Claim 8 recites detecting double wheel lift and boosting the roll signal for control in response to wheel lift. Wheel lift detectors set forth at various placed including reference numeral 50 of Figure 4B. Also, Figure 5, reference numeral 50, refers to wheel lift detection. Step 130 in Figure 8 also refers to detecting double wheel lift.

Figure 9 recites further comprising applying brake pressure to counteract rollover, determining the vehicle may be bouncing, and in response to bouncing holding the brake pressure. The detection of bouncing is set forth in step 134 of Figure 8. Holding the pressure is set forth in step 136 of Figure 8 in the corresponding description.

Claim 10 is an independent claim directed to a method for operating a control system for an automotive vehicle. The steps include determining that the vehicle is in a transition, determining a relative roll angle, and when the relative roll angle reaches a threshold and the vehicle is in a transition, initiating a wheel departure angle determination. Claim 10 further recites determining a roll signal for control in response to the wheel departure angle and controlling the safety system in response to the roll signal for control. The steps are set forth in Figure 8. Many of the steps of Claim 8 have been set forth in independent Claim 1 and its corresponding dependent claims. Determining the vehicle is in a transition is illustrated in step 122 of Figure 8. Determining a relative roll angle is set forth in step 124. Step 126 compares the relative roll angle to a threshold and if the transitional flag is set. Step 128 starts the wheel departure angle determination and as mentioned above, controlling a safety system is described in various places through the specification.

Claim 11 recites detecting double wheel lift and boosting the roll signal for control in response to the double wheel lift. This is similar to Claim 8 and is set forth in steps 130 and 132 of Figure 8.

Claim 12 recites applying brake pressure to counteract rollover, determining the vehicle may be bouncing, and in response to bouncing holding the brake pressure. This is similar to Claim 9 above. Claims 9 and 12 have their basis in steps 134 and 136 of Figure 8.

Claim 13 is an independent claim directed to a method of controlling a vehicle that includes determining a roll signal for control, determining a relative roll angle, determining double wheel lift and in response to determining double wheel lift and the relative roll angle, increasing the roll signal for control to a boosted roll signal for control. As mentioned above, the roll signal for control is determined and boosted in step 132 of Figure 8. Determining the relative roll angle is set forth in step 124 and determining double wheel lift is set forth in step 130.

Claims 14 and 15 were deemed allowable by the Examiner.

Claim 16 is an independent claim directed to a method for controlling a vehicle that includes applying a brake pressure to prevent rollover, determining the vehicle is bouncing as set forth in step 134, and holding the brake pressure when the vehicle is bouncing in step 136. Applying brake pressure to prevent rollover is set forth in various places in the specification including Box 41 of Figure 4A.

Claims 17 and 18 recite that the transitional maneuver is a right to left maneuver or a left to right maneuver, respectively. This is set forth in various places including the transition detector 52 set forth in paragraph 53 relative to Figures 4A and 4B. Paragraph 54 also sets forth the transition detection module 52.

VI. Grounds of Rejection to be Reviewed on Appeal

The following issues are presented in this appeal:

Whether Claims 1-13 and 16-18 are anticipated under 35 U.S.C. §102(b) over *Chubb* (6,593,849).

VII. Argument

The Rejection of Claims 1-13 and 16-18

Claim 1

The *Chubb* reference teaches a method for using various sensors for determining wheel lift of the vehicle. Some claims of the *Chubb* reference are directed to determining the normal forces acting on the wheel as a function of various sensors. In response to the normal forces acting on the wheel, a determination whether the wheels have

lifted may be determined. The determination of the normal forces is an indirect measurement of the roll condition. No teaching or suggestion is found in the *Chubb* reference for determination of specific angles. That is, no teaching or suggestion is provided in the *Chubb* reference for determining a relative roll angle. Each of the claims of the present application describes determining a relative roll angle.

As described above, the relative roll angle is illustrated in Fig. 2. The definition for the relative roll angle is set forth in paragraph 39 which states that the relative roll angle is the angle between the wheel axle and the body. For determining a relative roll angle the Examiner points to Col. 4, line 60, through Col. 5, line 2. Appellants have reviewed these sections and can only find the teaching of a normal force attributable to lateral acceleration in the formula in that passage.

Second, Claim 1 also recites the step of "when the relative roll angle reaches a threshold, initiating a wheel departure angle determination. The wheel departure angle is also illustrated in Fig. 2., the definition of which is set forth in paragraph 39. The wheel departure angle is set forth as the angle from the axle or wheel axis to the road surface. Again, this is a specifically defined angle.

Because no relative roll angle is taught, no relative roll angle reaching a threshold is also taught. Also, no teaching or suggestion is provided for the wheel departure angle. The Examiner states that the wheel departure angle is clearly illustrated in Fig. 1 and also Col. 2, lines 43-49. Appellants have reviewed Fig. 1 and Col. 2, lines 43-49, and can find no teaching or suggestion of a wheel departure angle determination. Claim 1 also recites controlling a safety system in response to the wheel departure angle. The *Chubb* reference determines the normal load or wheel lift. No specific wheel departure angle is determined and therefore controlling a safety system in response to the wheel departure angle is also not set forth.

In response to these arguments, the Examiner, in the Final Office Action, states that Figure 1 of the *Chubb* reference clearly illustrates the wheel departure angle. While rollover control and wheels lifting off the pavement is illustrated and taught in the *Chubb* reference, no teaching or suggestion is determined for actually figuring out the specific angles. Appellants therefore respectfully request the Board to reverse the Examiner's position with respect to Claim 1.

Claims 2-7

Claims 2-7 stand or fall with respect to Claim 1.

Claim 8

Claim 8 recites detecting a double wheel lift and boosting the roll signal for control in response to the double wheel lift. While the *Chubb* reference teaches determining the normal load and thus the wheel lifting can be determined at more than one wheel, no teaching or suggestion is provided in the *Chubb* reference for boosting the roll signal for control in response to the double wheel lift. Appellants therefore respectfully request the Board to reverse the Examiner's position with respect to Claim 8.

Claim 9

Claim 9 recites determining the vehicle may be bouncing and in response to bouncing holding the brake pressure. Appellants can find no teaching or suggestion in the *Chubb* reference for the determination of the vehicle bouncing. Appellants therefore respectfully request the Board to reverse the Examiner's position with respect to Claim 9.

Claim 10

Independent Claim 10 is similar to Claim 1 in that a relative roll angle is also taught. Also, Claim 10 recites that when the relative roll angle reaches a threshold and the vehicle is in a transition initiating a wheel departure angle determination. Again, the wheel departure angle and the relative roll angles are both not taught or suggested in the *Chubb* reference. Further, because the wheel departure angle is not taught, a roll signal for control determined in response to the wheel departure angle is also not taught.

Claims 11 and 12

Claims 11 and 12 are similar to Claims 8 and 9 and therefore are believed to be allowable for the same reasons set forth above with respect to those claims.

Claim 13

With respect to Claim 13, determining a relative roll angle is also recited. This is not taught or suggested as described above with respect to Claims 1 and 10. No teaching or suggestion is found in the *Chubb* reference for increasing the roll signal for control to a boosted roll signal for control in response to determining a double wheel lift and the relative roll angle. Appellants therefore respectfully request the Board to reverse the Examiner's position with respect to Claim 13.

Claim 16

Claim 16 recites applying brake pressure to prevent rollover. Appellants respectfully submit that applying brake pressure to prevent rollover is common. What is not common is the determination that the vehicle is bouncing. Appellants can find no teaching in Col. 2, lines 52-65, that the vehicle is bouncing. A specific determination that the vehicle is bouncing is set forth in Claim 16 of the present application. Claim 16 also recites holding the brake pressure when the vehicle is bouncing. Without such a determination, the brake pressure would be applied and discontinued as the wheel touches and leaves the pavement. That is, the *Chubb* reference would determine the normal forces at the various times and because the vehicle is on the ground (albeit only briefly) application of braking would cease. This claim advantageously allows the vehicle brake system to maintain the application of brakes while the vehicle is bouncing. Appellants respectfully submit that this contrary to the *Chubb* reference and therefore Claim 16 is also believed to be allowable.

Claims 17 and 18

Claims 17 and 18 depend from Claim 10 and stand or fall with respect to Claim 10.

VIII. Appendix

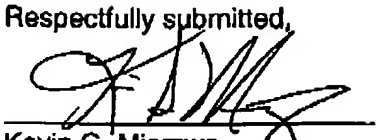
A copy of each of the claims involved in this appeal, namely Claims 1-20 is attached hereto as an Appendix.

IX. Conclusion

For the foregoing reasons, Appellants respectfully request that the Board direct the Examiner in charge of this examination to withdraw the rejections.

Please charge any fees required in the filing of this Appeal Brief to deposit account 06-1510 or, if there are insufficient funds, to use deposit account 06-1505.

Respectfully submitted,



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APPENDIX A

1. A method of operating a control system for an automotive vehicle comprising:

determining a relative roll angle;

when the relative roll angle reaches a threshold, initiating a wheel departure angle determination; and

controlling a safety system in response to the wheel departure angle.

2. A method as recited in claim 1 further comprising determining the vehicle is in a transition; and

when the relative roll angle reaches a threshold and the vehicle is in the transition, initiating a determination of a wheel departure angle.

3. A method as recited in claim 1 wherein the transition is a right to left transition.

4. A method as recited in claim 1 wherein the transition is a left to right transition.

5. A method as recited in claim 1 wherein the step of initiating is performed when the relative roll angle increases to the threshold.

6. A method as recited in claim 1 further comprising a generating a roll signal for control in response to the wheel departure angle and wherein controlling a safety system comprises controlling a safety system in response to the roll signal for control.

7. A method as recited in claim 1 wherein controlling a safety system comprises controlling a rollover control system to counteract a vehicle rollover.

8. A method as recited in claim 1 further comprising detecting a double wheel lift; and

boosting the roll signal for control in response to the double wheel lift.

9. A method as recited in claim 1 further comprising applying a brake pressure to counteract rollover, determining the vehicle may be bouncing, in response to bouncing holding the brake pressure.

10. A method of operating a control system for an automotive vehicle comprising:

determining the vehicle is in a transition;

determining a relative roll angle;

when the relative roll angle reaches a threshold and the vehicle is in a transition, initiating a wheel departure angle determination;

determining a roll signal for control in response to the wheel departure angle; and

controlling a safety system in response to the roll signal for control.

11. A method as recited in claim 10 further comprising detecting a double wheel lift; and

boosting the roll signal for control in response to the double wheel lift.

12. A method as recited in claim 10 further comprising applying a brake pressure to counteract rollover, determining the vehicle may be bouncing, in response to bouncing holding the brake pressure.

13. A method of controlling a vehicle comprising:

determining a roll signal for control;

determining a relative roll angle;

determining a double wheel lift; and

in response to determining double wheel lift and the relative roll angle, increasing the roll signal for control to a boosted roll signal for control.

16. A method of controlling a vehicle comprising:

applying a brake pressure to prevent rollover;

determining the vehicle is bouncing; and

holding the brake pressure when the vehicle is bouncing.

17. A method as recited in claim 10 wherein the transition is a right to left maneuver.

18. A method as recited in claim 10 wherein the transition is a left to right maneuver.